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Influence of external conditions on geotropic response.—A timely paper by BACH¹⁹ records some valuable conclusions, of which perhaps the most important is that the length of the reaction time cannot be used as a measure of the amount of stimulation. The minimum presentation time found in a variety of species was two minutes, as compared with fifteen minutes found by CZAPEK. CZAPEK's figure has thus far been widely accepted, but the lower values of the author are apparently good. The length of the plant is a factor if the plant is less than medium, in which case the reaction-time is lengthened. Temperature is a potent factor, even variations of 14–35°. Such variations have been regarded by CZAPEK as impotent, but the opinion was based on the behavior of different material. Either regular or irregular shaking are indifferent factors. Other important conditions tried were duration of stimulation, centrifugal force, positional deviations. The paper shows the guiding hand of FITTING, whose service is acknowledged.—RAYMOND H. POND.

Young sporophytes of *Lycopodium*.—Miss WIGGLESWORTH²⁰ has investigated the structure of sporelings of *L. complanatum* and *L. clavatum*, the material being obtained from Dr. BRUCHMANN and consisting of two sporophytes of each species. The first root may show monarch, diarch, and triarch arrangement in the same plantlet, the phloem occupying the center of the stele and extending between the xylem groups to its periphery. The roots arise endogenously near the apex of the stem and either pass out directly or downward through the cortex. At the base of the stem the vascular strands are continuous with those of the first root, and a fusion of two or of all three of the xylem strands occurs. The xylem strands take a very irregular course, fusing with one another and subdividing in the lower part of the stem. The upper part of the stem shows a triarch or tetrarch arrangement of xylem with central metaxylem, generally connected with two or more groups of protoxylem.—J. M. C.

Embryology of *Rhytidophyllum*.—COOK²¹ has investigated the embryology of *Rhytidophyllum* (*R. crenulatum* and *R. tomentosum*), a genus of Gesneriaceae, the material being Cuban. The ovulate archesporium is a single hypodermal cell, which usually functions directly as a megaspore. The embryogeny is of the well-known *Capsella* type, differing only in certain features of dermatogenformation and in the contributions of the hypophysis. The embryo encroaches upon both endosperm and nucellus, and in the mature seed is invested only by the integuments.—J. M. C.

¹⁹ BACH, HEINRICH, Ueber die Abhängigkeit der geotropischen Präsentations- und Reaktionszeit von verschiedenen äusseren Faktoren. Jahrb. Wiss. Bot. 44:57–123. 1907.

²⁰ WIGGLESWORTH, GRACE, The young sporophytes of *Lycopodium complanatum* and *Lycopodium clavatum*. Annals of Botany 21:211–234. pl. 22. 1907.

²¹ COOK, MELVILLE T., The embryology of *Rhytidophyllum*. Bull. Torr. Bot. Club 34:179–184. pl. 10. 1907.